#### Rad-Hard ADC IP, Phase I

Completed Technology Project (2018 - 2019)



#### **Project Introduction**

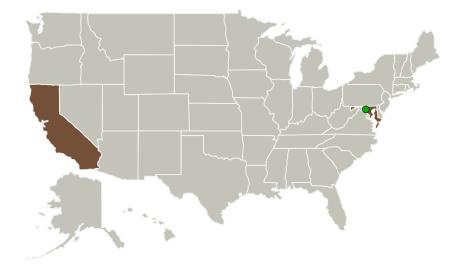
Technovare is proposing the development of RHBD Analog to Digital Conversion IP capable of supporting the next generation of high speed spacecraft data communications systems. The design will be based upon a folding interpolated architecture and feature 12 bits of resolution with a 3200 MSPS sampling rate. The design will be targeted for Global Foundries 14 nm or 45 nm process with a targeted radiation performance of 1 MRAD. The use of a CMOS process will allow it to be integrated with a combination of RF and digital circuitry enabling a complete SOC solution.

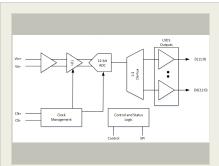
#### **Anticipated Benefits**

The NASA Laser Communications Relay Demonstration (LCRD) mission proposes to revolutionize the way we send and receive data, video and other information, using lasers to encode and transmit data at rates 10 to 100 times faster than today's fastest radio-frequency systems, using significantly less mass and power. The mission will require the use of a SOC with integrated RF, digital, and ADC IP

The DOD's next generation of Mil-Satcom systems will require similar SOC developments to support enhanced communications across the globe in support of military operations combining, audio, video, and data services.

#### **Primary U.S. Work Locations and Key Partners**





Rad-Hard ADC IP, Phase I

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#### Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Туре	Location
Technovare Systems,	Lead	Industry	Irvine,
Inc.	Organization		California
Goddard Space Flight Center(GSFC)	Supporting	NASA	Greenbelt,
	Organization	Center	Maryland

Primary U.S. Work Locations	
California	Maryland

#### **Project Transitions**

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July 2018: Project Start

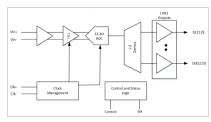


February 2019: Closed out

#### **Closeout Documentation:**

• Final Summary Chart(https://techport.nasa.gov/file/137890)

#### **Images**



#### Briefing Chart Image Rad-Hard ADC IP, Phase I (https://techport.nasa.gov/imag e/137135)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

#### **Lead Organization:**

Technovare Systems, Inc.

#### **Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

### **Project Management**

#### **Program Director:**

Jason L Kessler

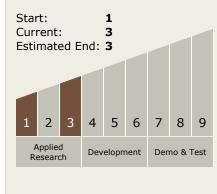
#### **Program Manager:**

Carlos Torrez

#### **Principal Investigator:**

Grant Stockton

# Technology Maturity (TRL)





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## **Technology Areas**

#### **Primary:**

- TX11 Software, Modeling, Simulation, and Information Processing
  - └ TX11.4 Information Processing
    - └ TX11.4.4 Collaborative Science and Engineering

#### **Target Destination** Earth

